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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,843

01/12/2004

Orlin Velev

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8437

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

09/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/755,843	Applicant(s) VELEV, ORLIN	
	Examiner Kaj K. Olsen	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-19 and 21-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-19, 21-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-10, 12-19, 21-30, and 32-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Becker et al (USP 6,294,063).
3. The claims remain rejected over the teaching of Becker for the reasons set forth by the previous examiner in the previous office action.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 11 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of Benecke et al (USP 6,149,789).
6. These claims remain rejected over the teachings of Becker and Benecke for the reasons set forth by the previous examiner in the previous office action.

Response to Arguments

7. Applicant's arguments filed on 7-6-2007 have been fully considered but they are not persuasive. Applicant urges that Becker does not disclose nor render obvious an exposed liquid surface for suspending a particle where the particle does not directly contact the plurality of electrodes as recited by independent claims 1 and 18. Although the examiner acknowledges that Becker differs from the teaching of the instant invention in a number of ways, Becker still anticipates the claims as presented giving the claim language its broadest reasonable interpretation. The examiner will deal with each part of this limitation separately.

8. With respect to the exposed liquid surface for suspending a particle, applicant's argument that Becker does not teach this is unpersuasive for two reasons. First, contrary to applicant's assertion, claims 1 and 18 do not require a particle to be suspended at the exposed liquid surface, but only that the liquid composition have a surface for suspending a particle. Any liquid inherently has a surface capable of suspending a particle. Both of claims 1 and 18 then further define that the particle is in said liquid composition, which is not the same thing as being at the surface. Because Becker undoubtedly has a particle in the liquid composition and inherently has a surface for suspending a particle (regardless of whether the particle is at the surface or not), it meets the claim. Second, even if the examiner were to interpret these claims as requiring a particle be suspended at the exposed liquid surface, Becker would also meet such an interpretation of the claims. Becker offers the specific example of water particles made from as much as 50 μ l of water suspended in liquids such as decane, bromodecane, mineral oil, and 3 in 1 oil. See example 1 at col. 26, ll. 13-22. Because each of the particles being constructed would have a diameter as low 100 nm (col. 3, ll. 14-16), that means the 50 μ l of water would result in

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on the order of 10^{13} water particles within the liquid (i.e. the volume of a 100 nm diameter spherical particle would be on the order of 10^{-19} liters). Because each of liquids utilized by Becker have densities either at or slightly below the density of the water being suspended, it is presumed that the water particles would be relatively well distributed throughout the fluid (unlike the instant invention where they rely on a fluid having a significant density difference (the density of F-oil is 1.94 g/ml), which would presumably cause most of the particles to float to the surface). Although most of the particles would presumably reside within the fluid itself, considering that there is on the order of 10^{13} particles within the fluid, at least some of these particles would reside at the exposed surface of liquid as well. This would meet even the alternative interpretation of the claim language.

9. With respect to the second part of the limitation requiring the particle not directly contact the plurality of electrodes, this again does not read free of Becker for two reasons. First, Becker would comprise on the order of 10^{13} particles within the fluid. Because the liquid compositions utilized by Becker all have a density either at or slightly below the density of the water particles, the particles would presumably be well distributed throughout the fluid and the examiner would acknowledge that many of the particles could presumably touch the electrode surface during particle manipulation. However, all claims 1 and 18 require is that a single suspended particle be suspended and that single particle would not directly contact the electrodes. Out of the 10^{13} particles in the liquid composition of Becker, many or most of those particles would never directly contact the plurality of electrodes and these particles would meet the claim limitation. The claims never specify any other particles so if other particles are present that do touch the electrode surface, that doesn't read free of the claims as long as there is at least one particle that

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doesn't touch the electrode surface. Second, it is also pointed out that Becker also teaches the use of a coating on the electrode surfaces to modify the interaction forces between the packets (i.e. particles) and the electrodes. See col. 25, ll. 29-34. The use of this coating would prevent any of the particles from directly contacting the plurality of electrodes, thereby also meeting this claim limitation.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753
September 7, 2007

A handwritten signature in black ink, appearing to read 'Kaj K. Olsen', with a stylized flourish extending to the right.

**KAJ K. OLSEN
PRIMARY EXAMINER**